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Zeichen/Ref./Réf.	Anmeldung Nr./Application No./Demande n°./Patent Nr./Patent No./Brevet n°.
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Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire
NCR INTERNATIONAL INC.

COMMUNICATION

The European Patent Office herewith transmits as an enclosure the European search report for the above-mentioned European patent application.

If applicable, copies of the documents cited in the European search report are attached.

☐ Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.

The following specifications given by the applicant have been approved by the Search Division:

☒ abstract ☒ title

☐ The abstract was modified by the Search Division and the definitive text is attached to this communication.

The following figure will be published together with the abstract: 1

REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.

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EUROPEAN SEARCH REPORT

Application Number
EP 04 25 7920

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	OFFICER S ET AL: "Novel online security system based on rare-earth-doped glass microbeads" PROCEEDINGS OF THE SPIE - THE INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING SPIE-INT. SOC. OPT. ENG USA, vol. 5310, no. 1, 20 January 2004 (2004-01-20), - 22 January 2004 (2004-01-22) pages 387-395, XP002323046 ISSN: 0277-786X * figures 8-11 *	1-14	G06K19/14 G07D7/12
X	DEJNEKA MATTHEW J ET AL: "Rare earth-doped glass microbarcodes." PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol. 100, no. 2, 21 January 2003 (2003-01-21), pages 389-393, XP002323047 ISSN: 0027-8424 * page 389, column 2; figure 3 *	1-14	
X	WO 03/105075 A (TRUSTEES OF BOSTON UNIVERSITY; JONES, GUILFORD, II; BURKE, SHAWN; MCDO) 18 December 2003 (2003-12-18) * figure 7 *	1-14	TECHNICAL FIELDS SEARCHED (Int.Cl.7) G06K G07D
A	US 4 451 521 A (KAULE ET AL) 29 May 1984 (1984-05-29) * figure 1 *	1-14	
A	WO 00/27645 A (KELSILL LIMITED; SPOWART, ALEXANDER, ROLLO) 18 May 2000 (2000-05-18) * claims 5-9 *	1-14	

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	1 April 2005	Mason, W

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 25 7920

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	EP 1 117 060 A (SICPA HOLDING S.A) 18 July 2001 (2001-07-18) * figure 1 *	1-14	
A	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 24, 11 May 2001 (2001-05-11) & JP 2001 206959 A (TOPPAN PRINTING CO LTD), 31 July 2001 (2001-07-31) * abstract; figures 1-3 *	1-14	
A	FR 2 556 867 A (JALON MICHEL) 21 June 1985 (1985-06-21) * claim 1 *	1-14	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	1 April 2005	Mason, W

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 04 25 7920

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01-04-2005

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 04 25 7920

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

This application is covered by the extended European search report pilot project at present running within the European Patent Office, applied to all European patent applications filed as first filing and searched on or after 01.07.03. Under this project the EPO issues together with the search report an opinion on whether the application and the invention to which it relates meet the requirements of the EPC. This non-binding opinion is issued free of charge as a service. This opinion may be used as the basis for an informed decision as to whether it is desired to pursue the application further or not.

For further details of this pilot project, the applicant's attention is directed to the Official Journal edition 5/2003. If any further immediate questions or comments arise the EPO Customer Services: +31-70-340 4500 or +49-89-2399 2828 can be contacted.

The attached opinion reveals that the application or the invention to which it relates appear not to meet the requirements of the Convention (see comments on enclosed Form 2906).

If the applicant wishes to continue with this application the examination fee must be paid. Where appropriate amendments can be filed to address the objections raised in the opinion, thus shortening the overall procedure. If no amendments are filed, the opinion will be re-issued as the first official communication under Article 96(2) and Rule 51(2) EPC.

If the examination fee has already been paid and the right to the communication under Article 96(1) EPC has been waived for this application, the first official communication under Article 96(2) and Rule 51(2) EPC will be issued promptly.

The examination is being carried out on the **following application documents**:

Description, Pages

1-41 as originally filed

Claims, Numbers

1-14 as originally filed

Drawings, Sheets

1/11-11/11 as originally filed

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1. The present application relates to an optical scanner and a method of optical scanning in which a sample is illuminated and the radiation produced by the sample in response to the illumination is detected for classifying the sample into a plurality of categories. In particular the application is directed toward security labels which are difficult to counterfeit and which are produced by forming a non-crystalline material which is doped with at least one rare earth element having a relatively narrow spectral response. Articles to be identified (e.g. bank notes and securities) have the particles attached to them and emit therefore a characteristic signature.

   The following documents are referred to:

   D1="Novel online security system based on rare-earth-doped glass micro beads"; Proceedings of the SPIE 20-22 Jan. 2004; Vol 5310, Nr. 1, pages 387-395; Officer S et al;

D2="Rare earth-doped glass microbarcodes"; Proceedings of the National Academy of Sciences of the United States of America January 21, 2003; Vol 100, Nr. 2, pages 389-393; Dejneka Matthew J et al;

D3=WO03105075.

2. CLARITY AND INTERPRETATION OF CLAIMS

- claims 1-13 are directed to a scanner and do not therefore comprise the sample.

- as claimed and disclosed in the application the term "scanner" effectively includes the device performing the optical measurement as well as the carrier of the sample which are moved relative to each other - "scanner" should be interpreted therefore in a very broad sense.

- "interrogation station" is sufficiently broad to encompass a location in space at which an interrogation is performed and as such is not a feature limiting the claimed "scanner".

- "a reference material accessible to the scanner" is not a feature of the scanner itself.

- "support", "carrier" are sufficiently broadly worded to encompass i.a. respectively a document and a glass matrix.

3. PRIOR ART

D1 (Figs. 8-11) discloses an optical scanner and an optical scanning method using a plurality of rare earth dopants (samples) in micron sized borosilicate beads (carriers) incorporated in a printable ink which is applied to a security document such as a banknote (support). The carrier glass beads comprise three rare earth dopant ions which are located on a document which is scanned relative to a multi-channel

detector head. The (portable) scanner / head comprises illumination and detection optics for measurement at different wavelengths using a series of filters and LED's which are pulsed (triggered), photo detection means which are controlled, processing means and a PC for data acquisition and display of the results. The electronic filtering is to detect the label and the apparatus is to be implemented e.g at the point of used of documents such as tickets to enable checking of validity.

D2 (Fig. 3, page 389, col 2) relates to rare earth (RE) doped glass microbarcodes as ultra miniaturized identification tags for use in e.g. biotechnology and security applications in which multiple RE ions in a silica based glass matrix host forming encoded beads are simultaneously excited and decoded to identify objects in which they are carried. The bar codes are decoded and imaged using a spectral imager mounted on a fluorescence microscope equipped with a mercury lamp and excitation and emission filters.

D3 (Fig. 7) discloses a system and method for product and document authentication which comprises one or more security inks, for marking materials comprised of e.g. plastic and in which by use of excitation filter 2, emission filter 6 and processing means measured lifetimes are compared to a set of admissible lifetimes, to determine whether these signatures match those of an "authentic" lanthanide chelate - the system also comprises an asynchronous trigger source.

4. NOVELTY

In view of the interpretation of the claims and the disclosure of the prior art above:

Claims 1-13. See D1;

Claims 1-10, 12-13. See D2;

Claims 1-7, 9-13. See D3;

- together claims 1-13 do not meet the requirement of novelty (Art. 54 EPC).

5. INVENTIVE STEP

The following features not disclosed in the above prior art are considered evident to the skilled person as indicated:

Claim 14. Positioning a reference material at a reference station, projecting the set of frequencies of excitation radiation toward the reference material and detecting a reference signature produced by the reference material in response to the set of frequencies. Although D1-D3 do not explicitly disclose how the checking of validity is carried out the above steps which amount to reading reference is one of the two most likely alternatives available to the skilled person (the other being storage of the reference data).

Claim 14 therefore does not meet the requirement of inventive step (Arts. 52, 56 EPC).